
Is Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Worthwhile?

RICHARD CURRIER, MA

OF THE \$118.5 billion Americans spend on health care each year, \$15–\$20 billion are spent on annual and semiannual checkups (1). Physicians, hospitals, health organizations, labor unions, and corporations promote checkups as an indispensable tool in safeguarding health, and even our Presidents submit to annual checkups in keeping with a longstanding American tradition.

The Case for EPSDT

Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) fits easily into this American custom of periodic checkups. Nevertheless, the justification for the commitment of the resources needed in a program such as EPSDT, through which 12 million American children and youths are screened for early discovery and treatment of health problems needs to be explored. Or is screening an elaborate national ritual designed more to alleviate fears than to discern ills?

Some physicians consider annual checkups a waste of time. Dr. Russell Roth, a urologist and former AMA president, reported that in 35 years of routine rectal examinations he found only one patient with an ailment that was alleviated by early treatment (2). Is this multimillion dollar health program based merely on popular belief rather than on demonstrated value? When 13 to 18 percent of health care

dollars are spent on routine examinations, prudent planners should raise questions about the costs and benefits of such a program if we are to make the best use of limited health care resources. Answers to these cost-benefit questions are even more urgent as the shape of a health insurance scheme becomes the subject of debate in the political arena.

From the outset, a distinction must be made between health assessment, in the form of a physical examination, and screening. A physical examination is a procedure or test performed by or under the supervision of a physician on a well or ill person. It can result in a diagnosis and treatment, and its cost may range up to \$400.

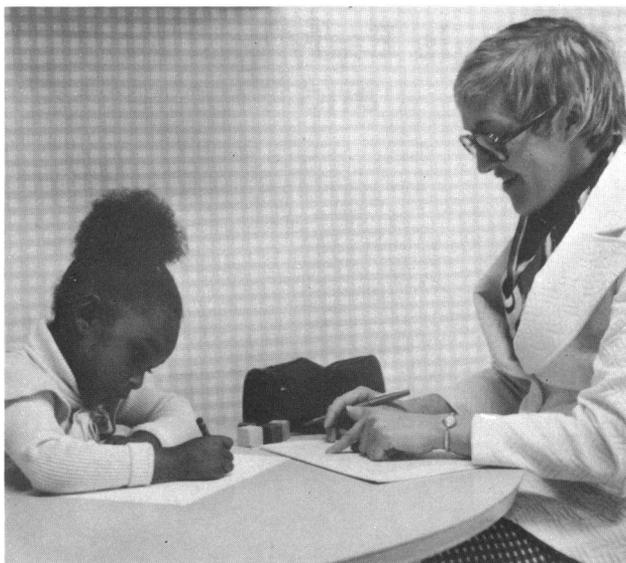
In contrast, screening of apparently well persons, as practiced in EPSDT, includes a health history, physical assessment, check on immunization status, and tests. These are relatively simple to perform, brief, cost little, and produce reasonably reliable results that are a valid basis for referring clients (3). Screening may be conducted by a nurse or a para-

□ *Mr. Currier is coordinator for the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program, Michigan Department of Public Health, Bureau of Personal Health Services. Tear-sheet requests to Richard Currier, Michigan Department of Public Health, P.O. Box 30035, 3500 North Logan, Lansing, Mich. 48909.*

medic rather than by a physician, and therefore it is not intended to diagnose illness or initiate treatment, but to identify problems. The average cost for screening ranges from \$20 to \$40 per client.

My purpose is to evaluate screening as an efficient and effective component of the EPSDT system that is designed to provide health care for the children of low-income families. Much more than screening is involved in an EPSDT system—outreach, referral, diagnosis, treatment, and followup are also required. Screening is a key link to these activities. Generally, in making decisions about screening programs, one must take into account the state of the art, attitudes, and alternative approaches (4). These elements have not been used, however, to explain the need for EPSDT. This program rests primarily on the congressional mandate based on recognition of the inadequacy of the health care that low income children receive. In trying to understand the action of Congress, one should not view EPSDT as an isolated program that suddenly appeared on the scene, but as another in a long series of steps that began in 1935. In that year, Title V of the Social Security Act provided limited child health programs such as Maternal and Child Health. Some years later, in 1959, Federal matching funds made available to public assistance programs included some provisions for health care. A year later, a Federal medical care program was provided for the indigent and medically needy aged through the Kerr-Mills Act; and in 1965 Medicare and Medicaid became available to the elderly and the poor. The Medicaid legislation, however, was ineffective in terms of preventive health care. In Rochester, N.Y., more than 90 percent of the eligible children were enrolled in Medicaid, but there was no change in the frequency or purpose of their medical visits. In national studies, it was found that 30 percent of the 18-year-old youths were disqualified from military service because of health-related disabilities; disability due to illness or accident was 50 percent higher among the poor than nonpoor; and 75 percent of retarded persons came from rural and urban slums (5).

An amendment to Title XIX of the Social Security Act in 1967 required States to provide Early and Periodic Screening, Diagnosis, and Treatment for all Medicaid eligible persons under 21. The EPSDT law included an aggressive outreach effort to draw eligible children and youth into a screening and treatment program through which low-income clients could be channeled into needed health services. This congressional action, in effect, established the beginning of the first comprehensive health insurance



for 12 million Americans, since through this Act of Congress, comprehensive screening services became inextricably tied into a continuity of care through diagnosis and treatment (6). States will be penalized 1 percent of their share of Federal monies for Aid to Families with Dependent Children (AFDC) if they fail to implement a screening program as required by this most recent law.

A comprehensive evaluation of EPSDT should take into account the trend of events over the past 40 years that culminated in a mandated screening and treatment program. Special attention, however, should be given to the EPSDT amendment to Title XIX because, unlike previous laws, it includes an aggressive element—a penalty against the States for noncompliance and the expenditure of large sums of Federal and State money. It is possible that more and more people will become eligible for a program such as EPSDT and the comprehensive health insurance of which it is a part. It is unlikely that a 40-year trend will suddenly be reversed. My purpose is not to raise questions about the merits of national insurance but to discuss whether this latest step, early and periodic screening, is worth the time and effort involved. Normally, studies precede action, but EPSDT was added to Medicaid before any study was made (7).

A number of approaches can be taken to justify EPSDT. Perhaps the most obvious one is based on commonsense and experience. Those faced with major repairing of long-neglected teeth need no convincing as to the wisdom of preventive dental care. It appears self-evident that the small investment of time and energy needed to check blood

pressure is a small price compared to the devastating consequences of hypertension. Knowledge of the presence of the sickle cell trait can prevent much grief and expense through genetic counseling. Thoughtful people can readily see the value of preventive measures in these situations. Extending personal experience to national significance, however, is risky.

Sweden's Screening Program

The experience of another country that provides health tests for apparently well persons may be useful in assessing the value and effectiveness of a national screening program in the United States. Sweden provides free and voluntary multiphasic screening for all 4-year-old children. Health problems of functional importance were found in 21.6 percent of the 155,000 children screened during 1971. Of these problems, 71.8 percent were newly discovered by the screening. Excluding referrals for dental care, the prevalence of health problems was 15 percent, and 57.6 percent of these were newly found conditions. The following tabulations delineates the type and frequency of problems found in 4-year-old children in Sweden, by percentage (8).

<i>Problem</i>	<i>Newly discovered</i>	<i>Previously known</i>	<i>Total</i>
Caries	8.3	0	8.3
Visual	6.4	2.9	9.3
Neurological	2.2	0.7	2.9
Auditory	1.6	0.2	1.8
Surgical	0.3	0.7	1.0

If we assume that early detection of illness is cost effective, the findings from Sweden's experience with screening indicate that such a program can be beneficial. The screening program in the United States, however, includes persons up to 21 years of age from the low-income segment of the population. Moreover, the Swedish population is numerically equivalent to that of New York City. Although the data from Sweden may be useful, this U.S. screening program, with its different scope and objectives, needs to be examined on its own merit.

Evaluation of EPSDT

An evaluation of EPSDT could take one of two major directions. The first would look at the appropriateness of tests used, and the second would seek evidence of the worth of the screening program in general.

Hutchinson (9), in 1960, was the first to raise the critical issues of the appropriateness of screening tests, timing of the testing, and the kinds of dis-

eases to be sought in the screening. Grant observed that a comprehensive evaluation of screening tests must include their acceptance, effectiveness, and efficiency (10).

The results of various tests used in some screening programs may offer guidance in determining the tests' appropriateness, effectiveness, and efficiency. According to Bailey and co-workers (3), hearing tests indicate that 1 child in 1,000 has severe hearing loss, and 8 per 1,000 have impairment of more than 30 decibels. Of 1,000 children, one could expect to find 15 to 30 who have a degree of hearing loss sufficient to hinder progress in learning and socialization. Cost effectiveness for this test appears to be self-evident.

Sickle cell anemia occurs in 1 of every 625 American blacks at birth, and the sickle cell trait is found in 8 percent of the U.S. black population. Since there is no cure for the sickle cell trait, prevention depends entirely upon genetic counseling. Early identification makes such counseling possible and accordingly, a case can be made for inclusion of a test for the sickle cell trait in a screening program where indicated (3).

In urban areas, 20-28 percent of the children screened have 40 micrograms of lead per milliliter of blood. Even moderate lead poisoning damages brain and nerve tissues, resulting in retardation of the developmental and learning process. Severe poisoning is fatal. Damage occurs without specific symptoms. Routine screening for the presence of lead, therefore, is important to detect a condition that otherwise would not be found easily (3).

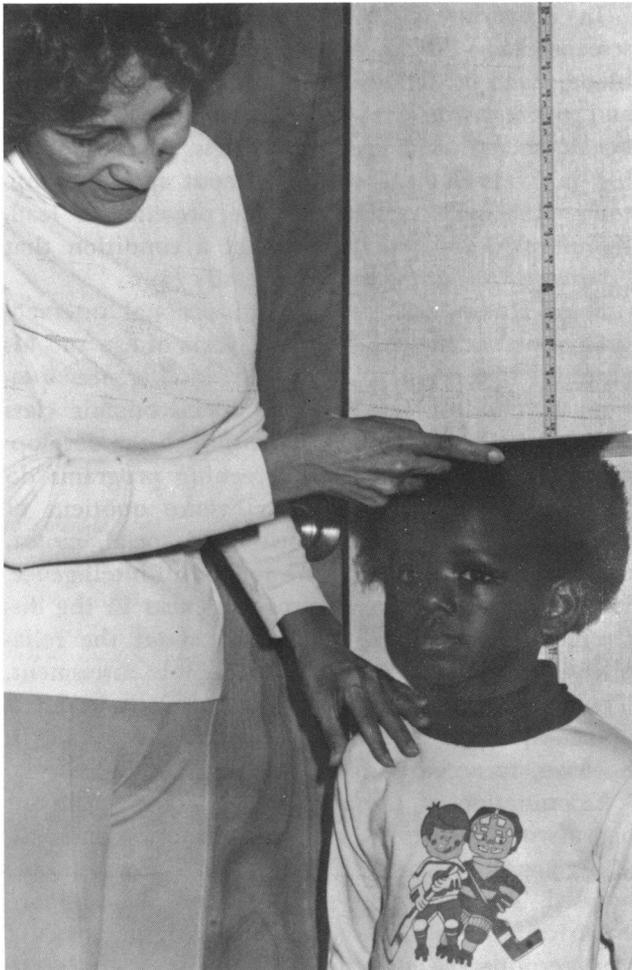
Some studies indicate that educational intervention, aimed at the child under 2 years of age and his parents, significantly raises the intelligence quotient of children in the lower socioeconomic class who have IQs of less than 70. Although the developmental tests used in many screening programs do not directly measure the intelligence quotient of a child, they do reflect growth and social, motor, and language factors that are related to intelligence. However, considerable controversy exists in the discipline of educational psychology about the reliability of guides for developmental assessment. Theoretically, a case can be made to include developmental testing as a part of screening; it is difficult, however, to accomplish in practice (3).

Examination of the appropriateness of each test has merit; however, a second technique consisting of a general evaluation of the EPSDT program may be used. The evaluation technique, based on a more empirical strategy, consists of analyzing actual data to determine if, over the years, fewer referrals are

Table 1. Summary of benefits and costs of an effective EPSDT program
(in millions)

Summary of benefits and costs	Year of the program							
	1	2	3	4	5	6	7	8
Reduced mortality benefits:								
Infants	1,044.6	1,044.6	1,044.6	1,044.6	1,044.6	1,044.6	1,044.6	1,044.6
Children (1-21)	372.0	372.0	372.0	372.0	372.0	372.0	372.0	372.0
Reduced morbidity benefits:								
Rehabilitation of persons with chronic disease	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Reduced number of physician visits after correcting chronic conditions	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Reduced hospitalization ...	0.0	55.8	75.2	80.6	84.3	84.3	84.3	84.3
Total benefits	1,433.1	1,488.9	1,508.3	1,513.7	1,517.4	1,517.4	1,517.4	1,517.4
Total EPSDT costs	980.0	462.5	370.5	240.0	209.5	209.5	209.5	209.5
Annual credit								
(benefits-costs)	+ 453.1	+1,026.4	+1,137.8	+1,273.7	+1,307.9	+1,307.9		
Cumulative balance	+ 453.1	+1,479.5	+2,617.3	+3,891.0	+5,198.9	+6,506.8	+7,814.7	+9,122.6

¹ Cumulative total. SOURCE Reference 11.



being made at rescreening in contrast to the rate of referrals on the initial screening. If such is the case, it may be assumed that health problems are being detected and corrected.

20-Year Cost-Benefit Study

In 1974, a study at the University of Texas Health Service Center, based on national statistics, demonstrated that substantial savings would result over a 20-year period if the EPSDT program is effectively introduced nationally (11). The report identified five major areas in which savings would be realized. These areas are (a) mortality of infants (ages 0-1), (b) mortality of young persons (ages 1-21), (c) rehabilitation costs for chronic diseases, (d) costs of physician visits, and (e) hospitalization costs. Cost savings measured in 1972 dollars were based on cost of health services against loss of productivity due to preventable health impairments in the persons involved. Current estimates of costs would require taking into account the rapid inflation rate of the economy in general and the exploding costs of health care in particular.

The Texas study assumed that all States will fully implement the screening program, as determined by Federal regulation. Periodicity will vary from a few months for infants to 3 years in the older age groups. The components of screening required by Federal regulations are a health history, physical examination with screenee unclothed, developmental

Table 1. (continued)

Year of the Program													20-year total ¹
9	10	11	12	13	14	15	16	17	18	19	20		
1,044.6			2,047.9	2,047.9								29,921.7	
372.0												7,440.0	
8.0										144.4	144.4	432.8	
8.5										153.3	153.3	459.6	
84.3												1,560.4	
1,517.4			2,520.7	2,520.7						2,801.9	2,801.9	39,814.7	
209.5	209.5	209.5	209.5									5,405.0	
			+ 2,311.2	+ 2,311.2						+ 2,592.4	+ 2,592.4		
+ 10,430.5	+ 11,738.4	+ 13,046.3	+ 15,357.5	+ 17,668.7					+ 31,817.1	+ 34,609.7		+ 34,409.7	

assessment, determination of immunization status, determination of nutritional status, vision testing, hearing evaluation, laboratory procedures appropriate for the specific age and population group, and dental assessment based on clear and specific criteria.

The authors of the study report concluded that the cumulative gross dollar savings from the reduced mortality in infants (0-1 year) resulting from EPSDT for a 20-year period would be \$30 billion; for persons 1-21 years of age, savings would amount to \$7.4 billion; for rehabilitation of children and youths under 18 years of age with chronic diseases, a savings of \$432 million would be realized; reduced morbidity resulting in fewer physician visits would yield a savings of \$459 million; and reduced hospitalization because of EPSDT would yield a savings of \$1.6 billion. Subtracting \$5.4 billion for an effective EPSDT program, the cost benefit over 20 years would amount to a cumulative dollar savings of \$34.5 billion or \$43 billion in 1976 currency. Table 1 is a summary of benefits and costs.

The investigators of the University of Texas study, however, cautioned that the figures in table 1 are a conservative estimate of costs, since reliable data are not available. The first 3 years of hospitalization costs are based on actual costs in a Children and Youth Program reported by Joseph Folkson from the University of Michigan. If actual data were not available, a conservative average was used. A more detailed explanation of assumptions and findings is

given in the study report (11). Its authors employed one method of assessing the worth of EPSDT.

Projected benefits from EPSDT as proposed in the Texas study need to be accompanied by empirical evidence afforded by actual data. If the rate of referrals is substantially reduced, when persons return for rescreening then it appears that the program is effectively reducing health care costs as predicted by the Texas study.

Michigan's EPSDT Program

By 1974 only half of the States were implementing EPSDT without serious problems. The Michigan EPSDT program began in April 1973. By October 1976, 425,000 persons had been screened, representing 10 percent of all Medicaid screenings in the United States. Implementing EPSDT in the State's 83 counties was speeded in part by a legal suit filed in the District Federal Court in 1972 by welfare rights organizations suing the Governor and the director of the department of social services.

In Michigan, persons under 21 years are offered screening initially when they become eligible for Medicaid. The recommended intervals for subsequent screenings are infants under 1 year, rescheduled every 6 months, persons 1 through 20, rescheduled every 3 years.

The Michigan program is the responsibility of the department of social services. That department

operates an outreach program to invite the 500,000 Medicaid-eligible people in the State to participate in screening. As table 2 indicates, outreach efforts have had considerable success in attracting minority groups. This outcome is due largely to two factors—the screening program receives high priority, and considerable effort is made to hire members of minority groups to do the outreach work. Credibility apparently is increased through this practice.

The department of social services contracts with the State's department of public health to develop and administer the periodic screening portion of EPSDT. This department in turn contracts with local health agencies that hire teams to operate clinics and conduct assessments. A team is composed of one nurse, two technicians, and one clerk. Since January 1, 1976, 72 teams have operated in 114 locations in 83 counties (12).

The screening tests that are given at every visit to a clinic are a review of health history, head-to-toe

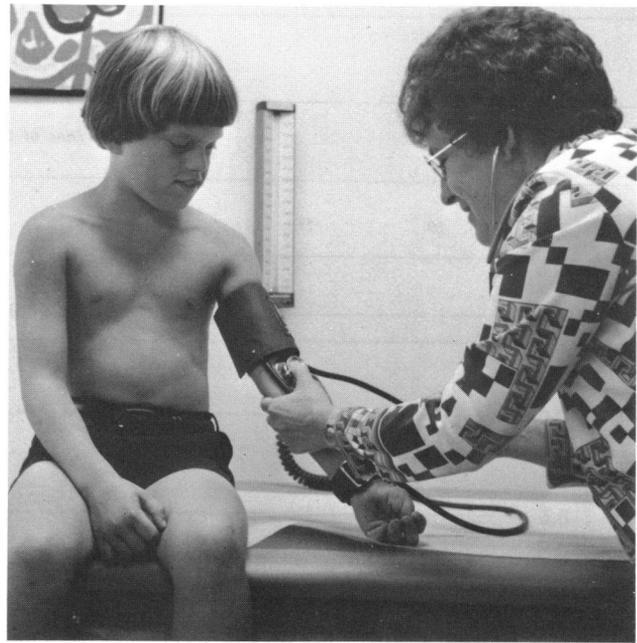


Table 2. Summary of screening and referral by initial screening and rescreening, by age and ethnic group, Michigan, January-June 1976

Age and ethnic groups	Number screened		Number referred		Percent referred	
	Initial	Rescreen	Initial	Rescreen	Initial	Rescreen
0-5:	20,412	4,081	11,455	2,045	56	50
White	12,162	2,449	6,119	1,187	50	48
Black	7,380	1,437	4,839	754	66	52
American Indian	77	13	43	6	56	46
Spanish-speaking	616	167	340	89	55	53
Other	141	14	93	8	66	57
Unknown	36	1	21	1	58	100
6-12:	15,917	4,466	10,398	2,155	65	48
White	9,750	2,547	5,726	1,108	59	44
Black	5,414	1,644	4,153	916	77	56
American Indian	83	20	59	5	71	25
Spanish-speaking	491	242	323	118	66	49
Other	160	13	123	8	77	62
Unknown	19	0	14	0	74	0
13 and over:	10,311	1,965	7,126	993	69	51
White	5,978	1,010	3,735	435	62	43
Black	3,768	826	2,996	489	80	59
American Indian	47	3	35	2	74	67
Spanish-speaking	373	114	247	59	66	52
Other	130	10	99	7	76	70
Unknown	15	2	14	1	93	50
Total:						
White	27,890	6,006	15,580	2,730	56	45
Black	16,562	3,907	11,988	2,159	72	55
American Indian	207	36	137	13	66	36
Spanish-speaking	1,480	523	910	266	61	51
Other	431	37	315	23	73	62
Unknown	70	3	49	2	70	67
Total	46,640	10,512	28,979	5,193	62	49

physical assessment, review of immunization status, urine test for albumin and sugar, micro-hematocrit, and height, weight, and hearing tests. A sickle cell test is performed on indicated persons at the time of the initial screening. Children under 6 receive language, personal-social, fine motor-adaptive, and gross motor tests (Denver Developmental Screening Test). Head circumference is measured on babies up to 2 years old. Vision is tested at each visit beginning at 3 years of age, and blood pressure is taken beginning at age 5. Blood lead screening is done on clients 1 through 5 years of age. Tuberculin tests, serologic tests for syphilis, and gonococcal cultures are done at the discretion of the local health department.

The average cost per screening in Michigan for 1974 was \$22.91 and in 1975, \$30.21 (12). These costs contrast with those in Sweden where the cost for screening initially was \$56 per child. In subsequent years, the cost in Sweden ranged from \$33 to \$44 per child screened. Swedes unlike Americans, however, do not ask the price of health care programs, but question only their beneficialness. Although American society has exacerbated health programs of minorities because of unemployment and inflation (13), the value of EPSDT is judged by some on its cost effectiveness. The key question is, will early discovery of health problems and treatment reduce the total number of health conditions requiring services and lead, subsequently, to a gradual reduction of expenditures in later years as well as improved health status? Although the originators of EPSDT saw in it the means for improving children's health and access to health care, fiscal pressures will eventually require an accounting of the long-range cost-effectiveness of screening.

In comparing the outcomes of those screened initially in Michigan with those rescreened one or more times, the following significant variables should be kept in mind:

- Turnover of the nurses who make referrals was 50 percent in 1975. Assuming that less-experienced nurses tend to make more referrals, changes in screening personnel will influence the rate of referrals. This variable, however, occurs equally among all clients whether being screened initially or a second time.
- Michigan reduced its reimbursement rate by 11 percent during the period under study. This change, and the alleged carelessness and other habits of Medicaid clients in keeping appointments, have made some providers reluctant to accept Medicaid referrals. A survey in 1976 indicated that acceptance

of new Medicaid patients among physicians in Michigan dropped from 83.57 percent in 1973 to 68.3 percent (14). Under this pressure, nurses are less inclined to make referrals.

- Changes regarding the intensity of outreach are not considered. Where more intensive outreach is initiated, more children of long-term welfare recipients will be recruited. Since welfare recipients and their children have more health problems (5), increased emphasis on reaching people living in ghetto areas will result in a higher incidence of problems in the group initially screened.

The preceding factors tend to detract from the validity of conclusions that are drawn from the Michigan EPSDT data. Certain other elements, however, tend to strengthen the data. The following observations should also be kept in mind:

- The population under study is not a sample but all persons screened during January through June 1976. Changes are real—not projections for the entire population from a random sample. Because of this factor, tests to establish the level of significance are unnecessary.
- The screening program that began in Michigan during 1973 is well beyond its startup phase and has attained considerable quality and consistency.
- A screening summary is completed for each client. If the person is being rescreened according to the intervals stated previously, the clerk marks an "R" on the top of the form to indicate rescreening. If the clerk, for some reason, neglects to place the "R" on the screening summary, it is automatically counted as an initial screening. If the hypothesis is correct, that rescreenings will show fewer referrals than initial screenings, then failure to mark a screening report as a rescreening would tend to lower referral rates among clients being screened initially.
- Standards for referrals have remained unchanged since the program began. Accordingly, a certain level of consistency can be expected.

Persons screened for the first time in Michigan are compared with those rescreened a second time or more by age and ethnicity in table 2. A number of observations can be made regarding these data.

A drop of 13 percentage points has occurred in the referral rate among those who are screened a second time or more. Outcomes of just 6 months, however, in a young program such as EPSDT admittedly do not support definitive conclusions. Whether these data indicate a clear trend remains a question to be addressed by subsequent reports. Initial indications are that EPSDT is effectively contributing to

Table 3. Referrals according to type of test by initial screening, rescreening, and age, Michigan, January–June 1976

Type of test	Tested				Followup indicated	
	Initial		Rescreen		Total	
					Initial	
	Number	Percent of screened	Number	Percent of screened	Number	Percent of tested
Measurements:						
Height	46,636	100	10,512	100	363	1
Weight	46,634	100	10,508	100	834	2
Head circumference	8,061	17	575	5	53	1
Denver Developmental Screening Test	20,510	44	4,104	39	604	3
Blood pressure	30,652	66	7,817	74	242	1
Vision screen	39,467	85	9,710	92	4,666	12
Hearing screen	46,621	100	10,510	100	1,684	4
Hematocrit	46,639	100	10,512	100	1,521	3
VDRL ¹	962	2	239	2	9	1
Gonococcal culture ¹	16	0	1	0	0	0
Tuberculin ¹	16,566	36	3,544	34	65	0
Urine:						
Sugar	38,401	82	9,050	86	63	0
Albumin	38,366	82	9,047	86	566	1
Sickle cell	14,014	30	2,453	23	761	5
Lead	16,708	36	4,011	38	1,023	6
Immunizations	46,640	100	10,512	100	12,228	26
Physical inspection	46,640	100	10,512	100	19,684	42
Health history	46,640	100	10,512	100	4,893	10

¹ Optional test.

NOTE: To the extent that norms can be established, the clinic tables can be used to determine unusual distributions of suspected abnormalities.

preventive health care. If the rate of referral continues to drop on rescreenings, then progress in Medicaid health cost containment appears possible. It should be kept in mind, however, that absence of a referral following rescreening does not mean that the original condition was cured. Treatment costs for health problems that are found in initial screenings may continue for an extended period. Health conditions already under care are not counted as a referral in a rescreening. It should be noted also that 29 percent of the referrals at initial screenings and 27 percent at rescreenings are for immunizations. The relatively small cost of immunization referrals will not be reduced significantly through screening.

Data that indicate motivation for accepting or refusing screening a second time or more are not available. Since screening periodicity ranges from 6 months to 2 years and EPSDT began in 1973, it is expected that there will be fewer rescreenings than initial screenings because many who were screened 1 year ago were not eligible for rescreening in this 6-month period of this study.

On the assumption that proportions remain con-

stant in the general Medicaid population, it is possible to view the initial screening and the rescreenings as a measure for assessing the acceptance of EPSDT by ethnic groups. Statistics from January and June 1976 indicate that the response to the program appears to be increasing among blacks and Spanish-speaking people and decreasing among whites. The percentage of whites in the total population who seek rescreening is less (57 percent versus 60 percent) than that of whites coming to be screened for the first time. (Significance is based on the fact that the entire population rather than a sample is being measured.) Greater percentages of blacks and Spanish-speaking people are returning for rescreening; the proportion of minority groups rescreened increased by 3 percent. Since ghetto areas generally have larger populations of blacks and Spanish-speaking people than whites, this finding indicated that areas were being penetrated that include high concentrations of welfare dependents and a greater incidence of health problems.

Parents with children 6–12 years old are much more anxious to bring these children for rescreening

Table 3. (continued)

Followup indicated									
0-5 Years						6 years and over			
Rescreen		Initial		Rescreen		Initial		Rescreen	
Number	Percent of tested	Number	Percent of tested	Number	Percent of tested	Number	Percent of tested	Number	Percent of tested
45	0	235	1	23	1	128	0	22	0
101	1	242	1	30	1	592	2	71	1
3	1	53	1	3	1	0	0	0	0
117	3	603	3	115	3	1	1	2	9
37	0	9	0	1	0	233	1	36	1
846	9	869	7	167	5	3,797	15	679	11
397	4	523	3	153	4	1,161	4	244	4
217	2	1,254	6	136	3	267	1	81	1
1	0	0	0	0	0	9	1	1	0
0	0	0	0	0	0	0	0	0	0
6	0	13	0	0	0	52	0	6	0
7	0	9	0	2	0	54	0	5	0
97	1	80	1	9	0	486	2	88	1
70	3	343	6	33	4	418	5	37	2
114	18	1,007	6	114	3	16	14	0	0
1,864	31	7,473	27	1,118	27	4,755	18	746	12
3,213	7	6,326	31	1,077	26	13,358	51	2,136	33
694	3	1,840	9	261	6	3,053	12	433	7

than children of other age groups. It is interesting that the most frequent objection to screening, voiced by teenagers, pertains to the physical assessment. Teenage boys are uncomfortable with clothes-off physical examinations by nurses. It should be noted, however, that there is only a small decrease in accepting a rescreening by this group. Physical assessment procedure is apparently not as objectionable as one might believe.

Data indicate that, with the dramatic drop in the rate of referrals for care among blacks, some progress is being made in drawing these people into the health care system through which health status can be improved. Since poor health is associated with welfare dependency, their improved health may eventually result in less dependency on public assistance.

A small decline of 6 percent occurred in the rate of referral of 0-5-year-old children in contrast to the 18 percent drop among clients 13 and older. This finding suggests that special effort should be made to include young adults in EPSDT.

Data from the various tests for which referrals

have been made appear in table 3. The rate of referral for each test among those rescreened remained the same or declined in comparison with the rate after initial screenings. For no test did the referral rate increase among rescreenees in terms of the total number screened. A decline in referrals occurred for tests related to measurements of height and weight, blood pressure, vision, hematocrit, venereal disease, lead in blood, and sickle cell trait. The most significant reduction was in the rate of referrals related to the client's immunization status (26 percent to 18 percent), head-to-toe physical assessment by a nurse (42 percent to 31 percent), and review of the screenee's health history (10 percent to 7 percent).

Among the various types of health care providers, the local health department had the greatest drop in referrals resulting from rescreenings (table 4). Most referrals to the health department were for immunizations. Costly referrals to private physicians and dentists were also significantly reduced among persons who were screened a second or more times.

We return to the question—is EPSDT worthwhile? The data have consistently indicated that

Table 4. Place of referral, initial screening, and rescreening, by age group, January-June 1976

Place of referral	Total				0-5 years				6 Years and Over			
	Number referred		Percent screened		Number referred		Percent screened		Number referred		Percent Screened	
	Initial	Rescreen	Initial	Rescreen	Initial	Rescreen	Initial	Rescreen	Initial	Rescreen	Initial	Rescreen
Any referral	30,189	5,361	65	51	12,764	2,227	63	55	17,425	3,134	66	49
Multiple referrals	9,873	1,419	21	13	3,396	544	17	13	6,477	875	25	14
No referrals	16,451	5,151	35	49	7,648	1,854	37	45	8,803	3,297	34	51
Private physicians	9,279	1,776	20	17	3,260	586	16	14	6,019	1,190	23	19
Dentist	11,304	1,976	24	19	2,148	560	11	14	9,156	1,416	35	22
Local health department	13,077	2,271	28	22	7,582	1,267	37	31	5,495	1,004	21	16
Outpatient clinic	3,085	254	7	2	1,296	117	6	3	1,789	137	7	2
Crippled children's clinic	530	87	1	1	335	42	2	1	195	45	1	1
Other	4,574	613	10	6	2,083	266	10	7	2,491	347	9	5

necessary referrals for health care are becoming less frequent, a decrease that may or may not be indicative of a trend. More time is needed before firm conclusions can be drawn. At this point, however, it appears that EPSDT is a wise investment financially and an effective intervention to correct conditions that would otherwise result in serious health impairment for many young Americans.

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SYNOPSIS

CURRIER, RICHARD (Michigan Department of Public Health): Is early and periodic screening, diagnosis, and treatment (EPSDT) worthwhile? *Public Health Reports*, Vol. 92, November-December 1977, pp. 527-536.

The State and Federal governments invest many tax dollars to provide health screening for millions

of Medicaid families. Justification for such investment is based on the experience of Sweden's screening of 4-year-old children, a University of Texas Health Service Center study on cost benefit of EPSDT, and the Michigan experience. In Sweden's health screening program, health problems of functional importance were found in 21.6 percent of the screenees, and 71.8 percent of these

were newly discovered by the screening. The results of Texas study indicated that an effective EPSDT program would result in a savings of \$43 billion in 1976 currency over a 20-year period. In Michigan, a drop of 13 percent occurred in the referral rate for health problems during a 6-month period among those who were screened a second time or more.